Section SF 30 - BLOCK 14 CONTINUATION PAGE

Revised (2) - Scope of Work
W912QR-08-D-0005

Green River Lock and Dam 3 (Rochester Dam)
Rochester, Kentucky

17 August 2009

PROJECT TYPE: Engineering Documentation Report

LOCATION: Rochester, Kentucky

PROJECT MANAGER: Lester E. Washington, TELEPHONE: (502) 315-6894

Note: First revised scope of work deleted downstream geotechnical borings and the evaluation of a structure removal option. Second revision noted that direct shear testing of recovered rock core is not requested in this scope.

1. Introduction, General Information and Purpose of Work:

(a) Purpose:

This scope of work is to perform an assessment determining the long term stability/integrity of Green River Lock and Dam 3. The assessment shall include historical document review, field explorations (including environmental sampling), stability analyses/integrity assessment, and the development of repair and remediation options. The final deliverable shall be a report documenting all field exploration, analyses, and identified remedial options. The report shall be formatted and prepared in accordance with ER 1110-2-1150 - Appendix E.

(b) Project Location and Description:

Green River Lock and Dam 3 is located near Rochester, Kentucky and is locally known as Rochester Dam. The structure was built from 1833-1836 and was acquired by the US government in 1895. In 1966, 5-10 ton derrick stones were placed on the downstream slope of the dam to prevent loss of stone from the timber cribbing. Lock operations were discontinued in 1981 and the project was placed in caretaker status. The project consists of a 35.8’ x 137.5’ lock chamber and a 353’ long dam section. Approximately 275 feet of the dam is constructed of timber crib and rockfill with the remaining being a combination bedrock shelf and excavated bedrock overflow spillway. During periods of high flows, water passes over the length of the dam, as the dam is designed as an overflow structure. Records indicate an original design crest of the dam as Elev. 380.4.

Local officials have expressed concern over the stability of the dam and lowering of the upstream river pool, pointing to three features they feel are contributing; (1) the spillway channel is deepening through bedrock erosion, (2) a second overflow channel is widening through removal of the rockfill, (3) and the formation of a third erosion channel in the dam.

2. Description of Services to be Provided:

The intent of this scope of work is to determine the stability of Green River Lock & Dam 3, and to develop viable remedial options to a 30% design level with preliminary cost estimates. The following paragraphs are intended to describe what level of effort is expected for these services. The USACE LRL will provide 1"= 50' scale mapping with 1' foot contours on NAD83 KY South State Plane Coordinates of the project site, and will also provide single point sonar/soundings of areas at the downstream and upstream zones of the dam.

(a) Historical Document Review

The contractor will be provided documents available within the Louisville District. Due to the fact that the original structure was not constructed by the federal government, this documentation is limited. In addition to these documents, the contractor shall perform its own historical documents search for photographs and information on the construction of Green River Lock and Dam 3. Historical photographs and documents can greatly enhance the understanding of the structure's construction details and facilitate assessments. An evaluation of the information shall be included in the final report.

(b) Development of Site Geological Assessment

The contractor shall develop regional and site specific geologic information that would have bearing on the stability and potential construction options for the project.

(c) Field Investigation

Visual Site Assessment: The contractor shall have an engineer experienced in similar type dams perform a visual inspection of the site with participation of Louisville District Dam Safety Personnel, for inclusion in the overall assessment of the stability of the dam. Opportunity should be taken to inspect the dam during any extreme low water periods that occur during the study period.

Exploratory Program: The contractor shall perform a geotechnical investigation to assess the foundation conditions below the dam, abutment conditions, and depth of siltation on the upstream side. It is expected that an adequate number of borings would be 3 to 4 along the upstream crest/slope through the dam, 3 to 4 along the upstream toe, and 1 to 2 at the left and right abutments (8 to 13 borings total).

The exact number and types of borings advanced will be recommended by the contractor based on anticipated analyses and remedial options, and access limitations. Final boring plan shall be

determined with coordination with Louisville District Geotechnical and Dam Safety Section. The number of borings shall be adequate to assess the stability of the dam and to complete remedial design options. Due to the makeup of the dam (rockfill) it is anticipated that the majority of borings would be soundings/rock cores with some sampling of the upstream silt.

Access for the majority of these borings will be performed from a floating plant. Boat ramps are located immediately upstream and downstream of the dam but are not owned or operated by the federal government. Right of access and suitability of use shall be determined by the contractor.

Contract Option(s) - Dive Inspections/Side Scanning Sonar: The need for dive inspections and/or side scanning sonar will be determined after the results of the sonar/soundings performed and evaluated by the USACE. The contractor shall assess the conditions at the project during the site visit inspection and determine if safe dive inspection can be performed and if this is an appropriate method for evaluating scour at the downstream toe at this project. Flow conditions at the dam, presence of large derrick stone, and presence of debris may not allow for performance of a dive inspection. If dive inspections are employed then all safety requirements outlined in this document shall be followed. Side scanning sonar capable of being executed in shallow water with rocky conditions may also be employed if diving inspections cannot be executed or are determined to be non-effective or hazardous. Dive inspections and/or side scanning sonar (producing detail bathymetry) will be executed as options in this contract if mutually agreed upon and negotiated between the contractor and the government.

**Any diving operations shall be done in accordance with EM 385-1-1 Section 30 and Louisville District's Dive Packet Program. The EM requires a dive plan be submitted for review prior to commencement of dive inspections.

Environmental Sampling: Previous reports by others have detected low levels of PCB's (.05 ppm to .16 ppm). A 1992 study by the USACE LRL sampled surface silts in the project area and did not find detectable levels of PCBs. Potential future repairs to the structure may require disturbance or removal of some of the silt upstream of the dam. Drilling activities are to include environmental sampling using appropriate protocols to limit the potential for sample contamination due to drilling operations and sample handling. Appropriate sample containers, preservation methods and chain of custody procedures will be implemented. The work plan and report will include a detailed description of all sampling and chemical analysis protocols proposed and implemented. The three planned borings advanced in the upstream silt shall select 3 samples, at equally spaced depths in each boring, for total of 9 samples. Selected samples will be tested for PCBs, ICAP, and AA metals. Drill operators shall have appropriate HAZWOPER training and follow the proper drilling/sampling procedures.

**All field work shall be done in accordance with EM 385-1-1 Safety and Health Requirements dated 16 September 2008. The Contractor shall be responsible for preparing an Accident Prevention Plan (APP) in accordance with Appendix A of EM 385-1-1 (Section 16 addresses drilling operations), which includes an Activity Hazard Analysis (AHA) and emergency contact information. The APP shall be submitted for review and approval to the USACE LRL ED-T-G

one week prior to commencement of work. An Equipment Safety Inspection sheet shall also be submitted for the equipment to be used prior to initiating work.

(d) Laboratory testing

Due to the materials the dam is constructed of, geotechnical soils laboratory testing is expected to be minimal. The exact type and number of laboratory tests shall be sufficient to assess the stability of the dam and develop the remedial options. Samples selected for environmental testing shall follow proper sampling, storage, and chain of custody protocols. Samples shall be tested for PCBs, ICAP, and AA metals

- Note: Direct shear testing of rock is not requested in this scope of work. Strength parameters for foundation rock shall be estimated through evaluation of the recovered rock core samples and review of published values.

(e) Stability Analyses / Integrity Assessment

The contractor shall analyze critical sections of the lock walls and main dam for stability following appropriate sections of EM 1110-2-1902 (Slope Stability) and EM 1110-2-2100 (Stability Analysis of Concrete Structures). Timber crib dams do not fit traditional analysis methods; and therefore, a failure mode approach should be employed to when assessing the structure's stability/integrity and when developing remedial options. It will be necessary to develop parameters for analysis based upon field investigations and document review. Hydrologic, ice, silt, and seismic loads shall also be developed for use in the analyses.

(f) Assessment Results and Development of Remedial Options

A final assessment of the long term stability/integrity of Rochester dam shall be developed based upon the data developed above and the contractor's experience with similar dam structures. Based on the assessment the contractor shall select 3 remedial options (in coordination with the Louisville District Geotechnical and Dam Safety Section), for stabilizing the lock and dam and maintaining the pool, and develop these options to a 30% design stage. The 3 remedial options are in additional to the evaluation of a do-nothing option. The remedial options should address: maintaining a crest elevation of 380.4, stability/integrity of the main dam and integral lock chamber, public safety of the project site (emphasis on lock chamber), economics, and constructability. Documentation of each of the remedial options shall include a cost estimate commensurate with the level of design detail for the project. Estimates shall use the current version of MCASES Mii software.

3. Deliverables:

The deliverables for this project shall include for review:

(1) Field work plan for review and approval prior to commencement of any field activities, including a boring location plan and all safety plans (APP and AHA and Dive Plan if executed).

(2) Preliminary field work findings and planned methods of analysis for review.

(3) Stability/integrity analysis results and identification of preliminary remedial design alternatives for review.

(4) Pre-final report (Following ER 1110-2-1150 - Appendix E) with assessment of long term stability, documenting all field work, laboratory testing, analyses, and 30% remedial design drawings.

(5) Corrected Final Report (Following ER 1110-2-1150 - Appendix E).

4. Project Schedule:

Submittal	Date
Contract and NTP issued	-
(1) Field Work Plan	NTP +14
(2) Preliminary Findings and Analysis Methods	NTP +90
(3) Stability Analysis Results & Design Alternatives	NTP +150
(4) Pre-final Report	NTP +180
(5) Corrected Final Report	NTP +210

5. Submittal Matrix:

Addressee	(1)	(2)	(3)	(4)	(5)
Lester Washington, USACE, PM-P	1	1	1	5	5
Jenni Reichard, USACE, ED-M-A	1	1	1	1	1
Jeffrey Esterle, USACE, ED-T-G	1	1	1	1	1
Total Copies	3	3	3	7	7

* Each submittal shall include hard copies as indicated above and one CD to each addressee.

6. Independent Technical Review and Quality Assurance:

6.1 Independent Technical Reviews (ITR). The AE shall carefully coordinate and review all work in accordance with their quality control plan prior to submission to the Government. The AE shall perform an ITR during each phase of report development (i.e., for each submittal). These ITRs will be conducted by qualified engineers (one per key design discipline) who are not

part of the design team and documented in the QC Plan. ITR comments may be entered into a formal Dr Checks review in which the ITR team members are the "Reviewers". The Government will assist the AE in setting up each such Dr Checks review. For each submittal, the AE will provide a signed certification that has the signatures of the ITR team and states that an independent technical review was accomplished and that review comments have been incorporated into the final design documents. Copies of all certification statements shall be furnished as an appendix to the Final Report. ITR certifications shall be certified by one of the firm's principals or authorized representative.

6.2 Quality Assurance. USACE will perform a quality assurance review of all work to assure compliance with the AE contract. USACE will review the work of the AE during each phase of design and return comments using the Dr Checks web-based automated management system. Government review does not relieve the AE of responsibility for the design. The Government may return to the AE for correction, completion and resubmission any submitted work that shows technical or coordination deficiencies. Should this become necessary, the schedule of this Scope of Work shall not be adjusted for the resubmission. Costs associated with the resubmission shall be borne by the AE.

7. Coordination for this Work:

Official guidance and instruction that pertains to either the interpretation of this contract or the performance of the work described herein will be provided by one of the points of contact below:

Louisville District PM POC information:
Mr. Lester Washington
Phone: (502) 315-6894
Email: lester.e.washington@usace.army.mil
Address: U.S. Army Corps of Engineers, Louisville District
CELRL-PM-P, Attn: L. Washington, Rm. 708
600 Dr. MLK Jr. Place
Louisville, KY 40202

Louisville District PE/A POC information:
Ms. Jenni Reichard
Phone: (502) 315-6472
Email: jenni.h.reichard@usace.army.mil
Address: U.S. Army Corps of Engineers, Louisville District
CELRL-ED-M-A, Attn: J. Reichard, Rm. 973
600 Dr. MLK Jr. Place
Louisville, KY 40202

Louisville District Technical POC information:
Mr. Jeff Esterle

Phone: (502) 315-6460
Email: jeffrey.a.esterle@usace.army.mil
Address: U.S. Army Corps of Engineers, Louisville District
CELRL-ED-T-G, Attn: J. Esterle
600 Dr. MLK Jr. Place
Louisville, KY 40202

8. Contract Authority:

The Architect/Engineer shall only accept instruction from the Contracting Officer or the duly appointed representative, and only do work that has been negotiated and authorized. Coordination of routine technical matters with USACE personnel shall be accomplished through the PE/A. The PE/A and the Contracting Officer's Representative (COR) are identified below:

Project Engineer/Architect:	Jenni Reichard
Office Phone:	502-315-6472
Email Address:	Jenni.h.reichard@usace.army.mil
Mailing Address:	Regular Mail: P.O. Box 59 Louisville, KY 40202-0059 Overnight Mail: 600 Martin Luther King Blvd. Suite 973 Louisville, KY 40201

COR:	Gerard Edelen
Office Phone:	502-315-6310
Email Address:	Gerard.j.edelen@usace.army.mil
Mailing Address:	Regular Mail: P.O. Box 0059 Louisville, KY 40202-0059 Overnight Mail: 600 Martin Luther King Blvd. Suite 973 Louisville, KY 40201

Direct requests from other agencies should be forwarded to the PE/A.

9. Request for Payment:

9.1 Pay Estimates. The AE Contractor shall submit Pay Estimates using ENG Form 93, Payment Estimate - Contract Performance. ENG Form 93 may be found on the Internet at:

http://www.usace.army.mil/inet/usace-docs/forms/

Requests for payments and requests for retainage refunds shall be submitted on the same ENG Form 93. All completed and signed AE ENG93 pay estimates requesting payment will be sent by the Architect-Engineer contractor to both the Project Engineer/Architect (PE/A) at the above email address and the District email:
"LRL-AE.Payments@usace.army.mil" as an attached PDF file.

9.2 Progress Reports. The AE shall include a progress report with the ENG Form 93, Payment Estimate as justification for the amount of payment requested. The progress report shall include in narrative form a summary of activities, estimated percentage complete, project schedule evaluation, and problems and recommended solutions. Pay Estimates should be submitted directly to the PE/A.

9.3 Release of Claims. A Release of Claims form shall accompany the final ENG Form 93. The Release of Claims shall be signed, include the final Task Order amount, and include a statement similar to the following: "The undersigned architect-engineer firm under Contract No. (fill this in once assigned by Contracting), between the United States of America and said contractor for services on Green River Lock and Dam 3 (Rochester Dam), hereby releases the United States, its officers, agents, and employees from any and all claims arising under or by virtue of said contract or any modification or change thereof except with respect to those claims, if any, listed below:"

Architect-Engineer ENG93 Invoice Receipt and Payment

Beginning 1 May 2009, all future completed and signed AE ENG93 pay estimates requesting payment will be sent by the Architect-Engineer contractor to both the Project Engineer/Architect (PE/A) at their specific email address and the District email "LRL-AE.Payments@usace.army.mil" as an attached PDF file. The AE firm may also submit an original ENG93 pay estimate by mail if requested by the PE/A or if the firm desires to send the document hard copy.

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 | 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
01	21-Sep-2009	W22W9K92084782	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
U. S. ARMY ENGINEER DISTRICT, LOUISVILLE 600 DR. MARTIN LUTHER KING, JR. PLACE ROOM 821 LOUISVILLE KY 40202-2267	W912QR	CIVIL/OPS/ENVIRONMENTAL BR ATTN: CRYSTAL M. MAY 600 DR M L KING JR PL RM 821 LOUISVILLE KY 40202-2236	H2CTCCMM

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
JACOBS/STANTEC, JOINT VENTURE LAURIE A CARTER 777 MAIN ST FORT WORTH TX 76102-5304		9A. AMENDMENT OF SOLICITATION NO.
		9B. DATED (SEE ITEM 11)
	X	10A. MOD. OF CONTRACT/ORDER NO. W912QR-08-D-0005-0008
	X	10B. DATED (SEE ITEM 13) 27-Aug-2009

CODE 35XE2 FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
X	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [X] is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Modification Control Number: h2ctccmm092756

W912QR-08-D-0005, Task Order 0008 for A/E Services at Green River Lock and Dam 3, Rochester, KY, is hereby modified as follows:

a. For clarification purposes, the attached Schedule applies to this Task Order in accordance with the Contractor's proposal dated 27 August 2009.

b. All other terms and conditions remain unchanged.

c. This modification is effective the date of the Contracting Officer's signature.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) JACQUELINE R GEE / ADDED BY SUMI TEL: 502.315.6186 EMAIL: jacqueline.r.gee@usace.army.mil	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 21-Sep-2009

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been added by full text:

Project Schedule

Submittal	Date
Field Work Plan	NTP + 28 days
Preliminary Findings and Analysis Methods	NTP + 105 days
Stability Analysis Results and Preliminary Design Alternatives	NTP + 168 days
Pre-final Report	NTP + 259 days
Corrected Final Report	NTP + 287 days

(End of Summary of Changes)

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

MODIFIED SCOPE OF WORK

MODIFICATION TO AN EXISTING
SCOPE OF WORK
for
GREEN RIVER L&D 3 (Rochester Dam)
Engineering Documentation Report

15 February 10

I. Background

Reference IDIQ W912QR-08-D-0005, D.O. 0008 for scope of work dated 23 July 2009.

II. Modification Requirements

Due to inaccessibility for underwater work at the dam site as a result of high river levels throughout the fall of 2009, the original scope of work needs the following modification:

1) Underwater work to include diving inspection and hydrographic work of the dam is to be delayed, with an expected completion date of 30 June 2010. As a result, the information gathered from performing these tasks will not be available to be included in the March submission of the "Preliminary Findings and Analysis Methods" report. Following completion of the underwater work, a second (and final) submission of this report shall be made.

III. Deliverables Associated with Modification

The only deliverable associated with this modification is a preliminary submittal for review of the "Preliminary Findings and Analysis Methods" report which was contained in the original scope.

IV. Schedule Associated with Modification

Due to the delay in performing underwater work at the dam site, delay to the original schedule is expected to be 7.5 months, with a revised project completion date of 21 January 2011.

V. Point of Contact